

# Architectural Decision Making; What Happens Behind the Scenes?

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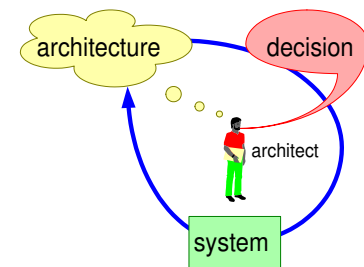
## Abstract

Many decisions are taken during the architecting of a system. The question is what are architectural decisions? And what is the process behind making these decisions? The expectations of the stakeholders will be discussed. The actual way of working of architects will be described.

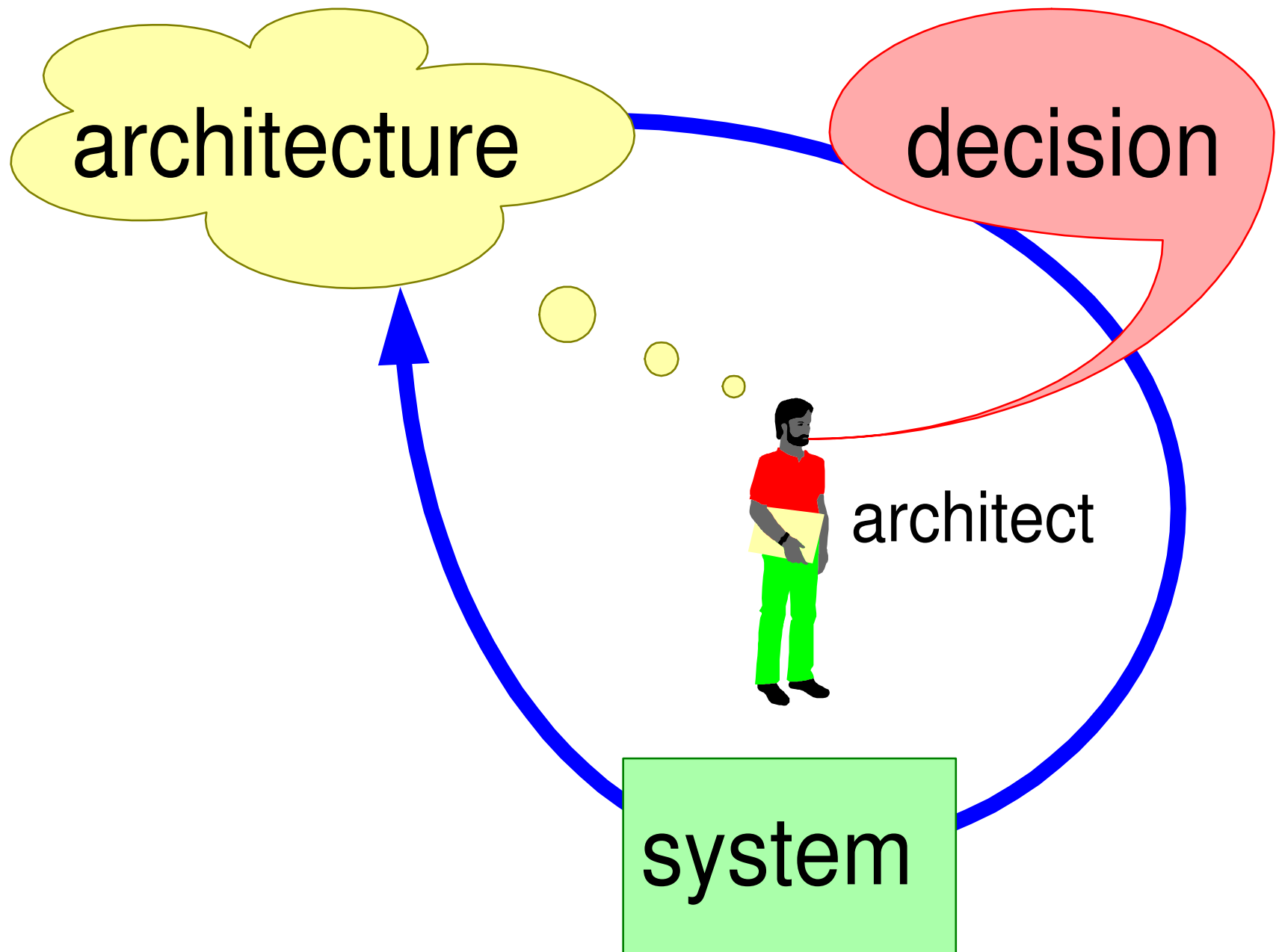
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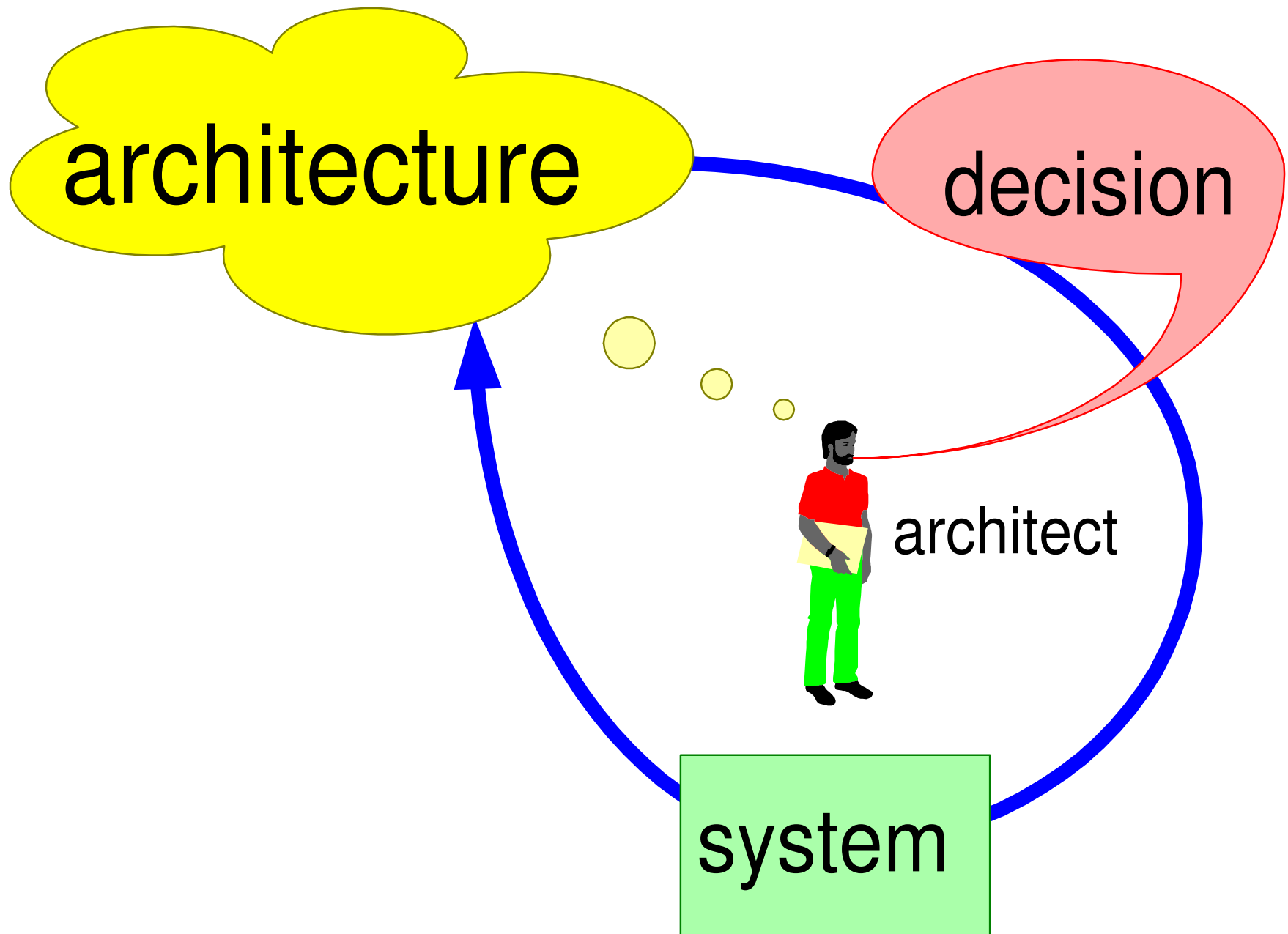
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version: 0.2



# Figure Of Contents™

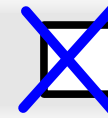


# Buzzword, Hype, Solution or What?



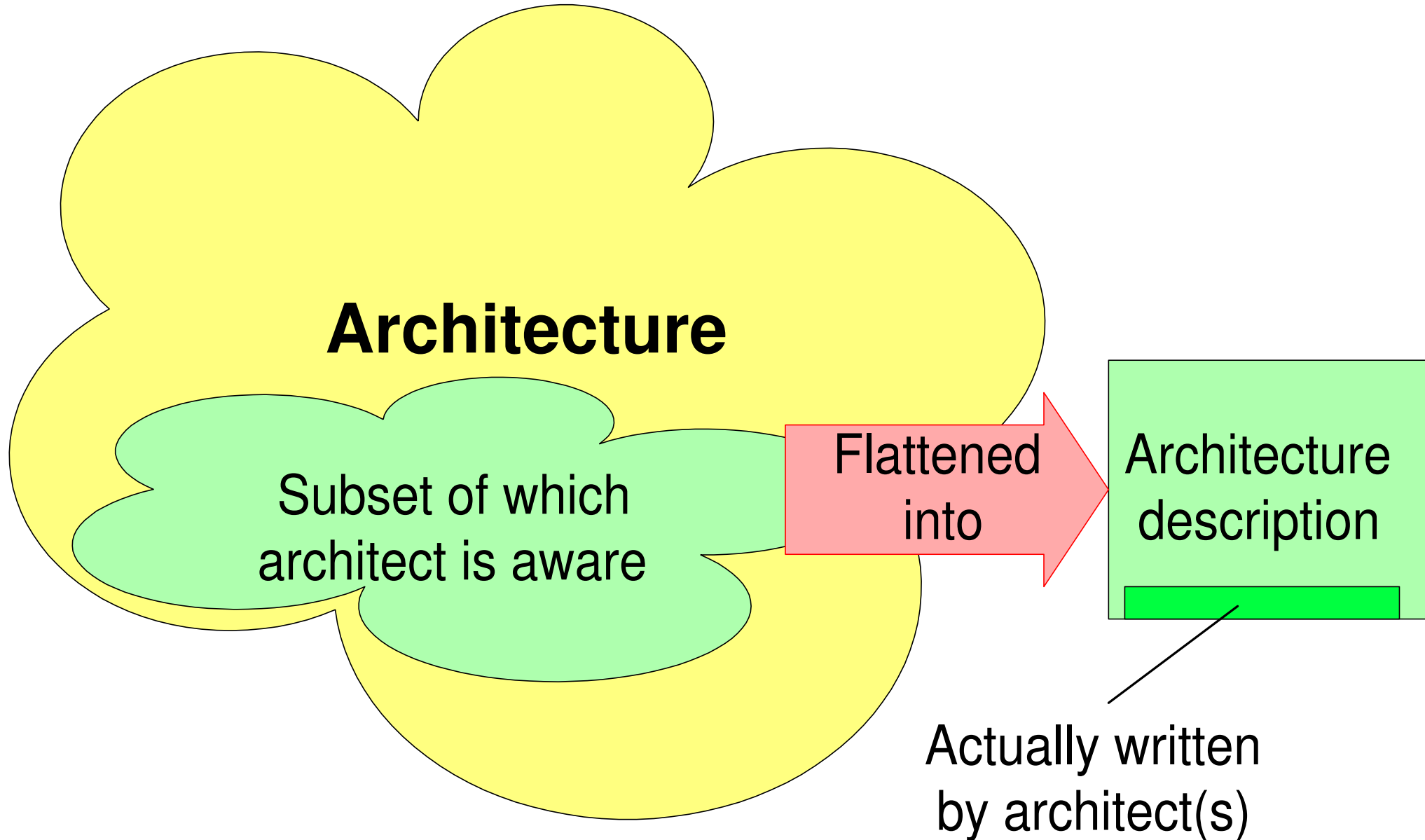
# What is Architecture?

Mark all applicable boxes



<input type="checkbox"/>	<p><b>specifications</b></p>	<input type="checkbox"/>	<p><b>indicators</b></p>	<input type="checkbox"/>	<p><b>overarching vision</b> market, business, technology process, product</p>
<input type="checkbox"/>	<p><b>API's</b></p>	<input type="checkbox"/>	<p><b>high level rules</b> layer n !calls n-k; k&gt;1 layer n !calls n+k; k&gt;0</p>	<input type="checkbox"/>	<p><b>guidance monitoring</b></p>
<input type="checkbox"/>	<p><b>components (implementations)</b></p>	<input type="checkbox"/>	<p><b>concepts</b> audio pipeline, message routing, whit communication</p>	<input type="checkbox"/>	<p>customers environment</p>
<input type="checkbox"/>	<p><b>infrastructure</b> OS, file system, bus, memory, I/O</p>	<input type="checkbox"/>	<p><b>standards</b> http, DVB, IPTV, WMA, MP3, JPEG</p>	<input type="checkbox"/>	<p><b>domain codification</b> Java, SQL, FPGA technology</p>
					<p><b>other...</b></p>

# Architecture vs Description



# My View on Architecture

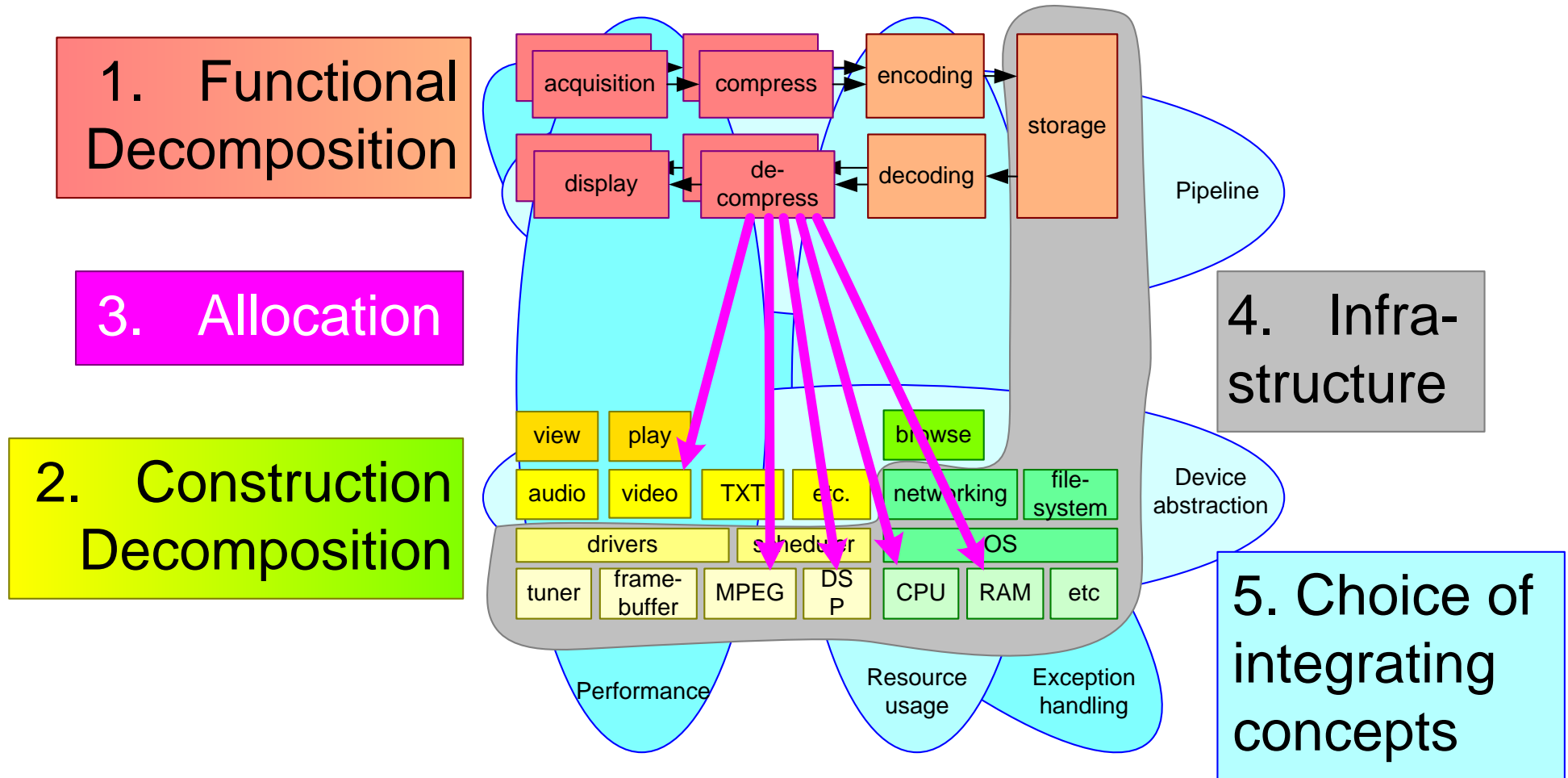
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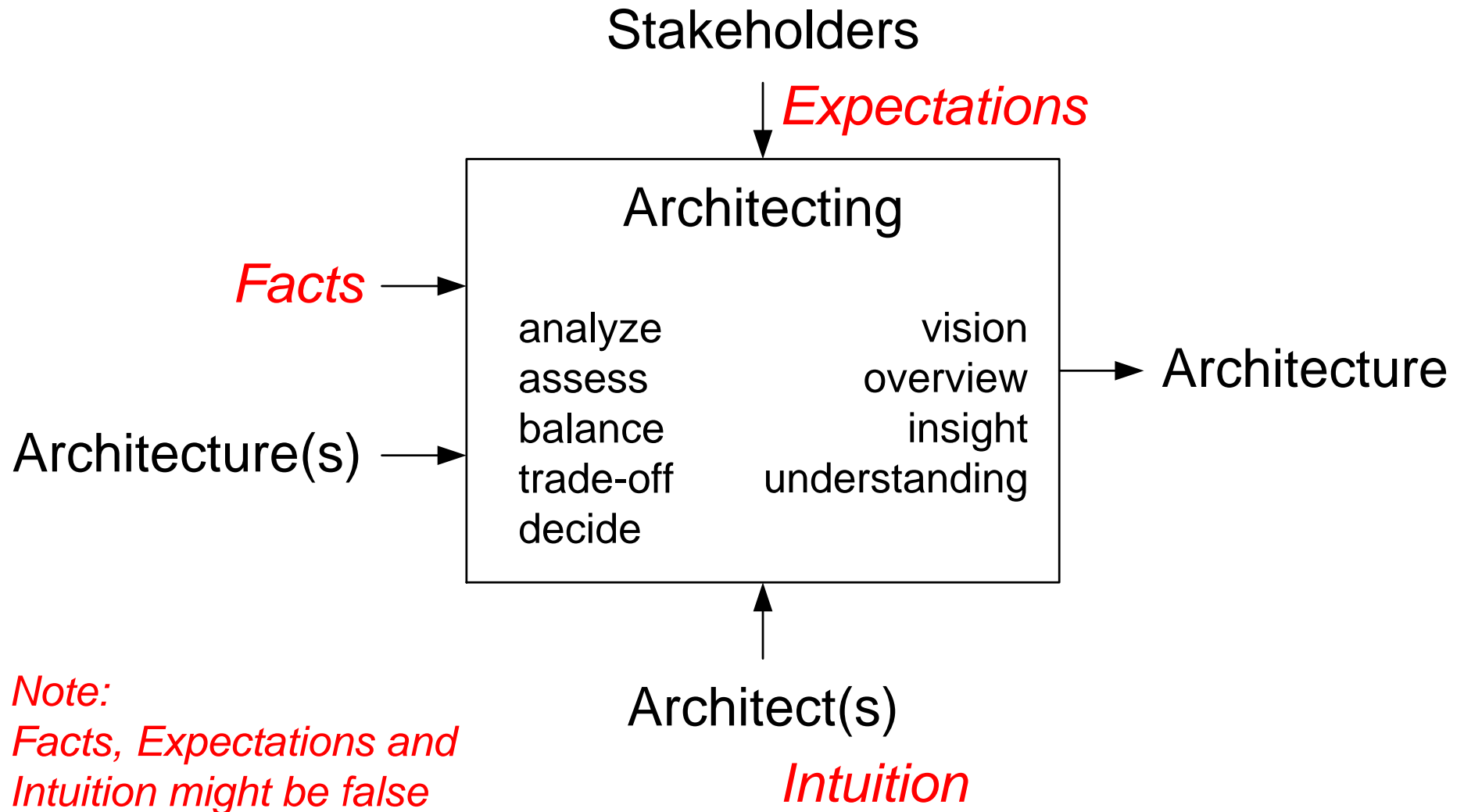
*Do the right things*

*Do the things right*

# "Guiding How" by providing rules for:

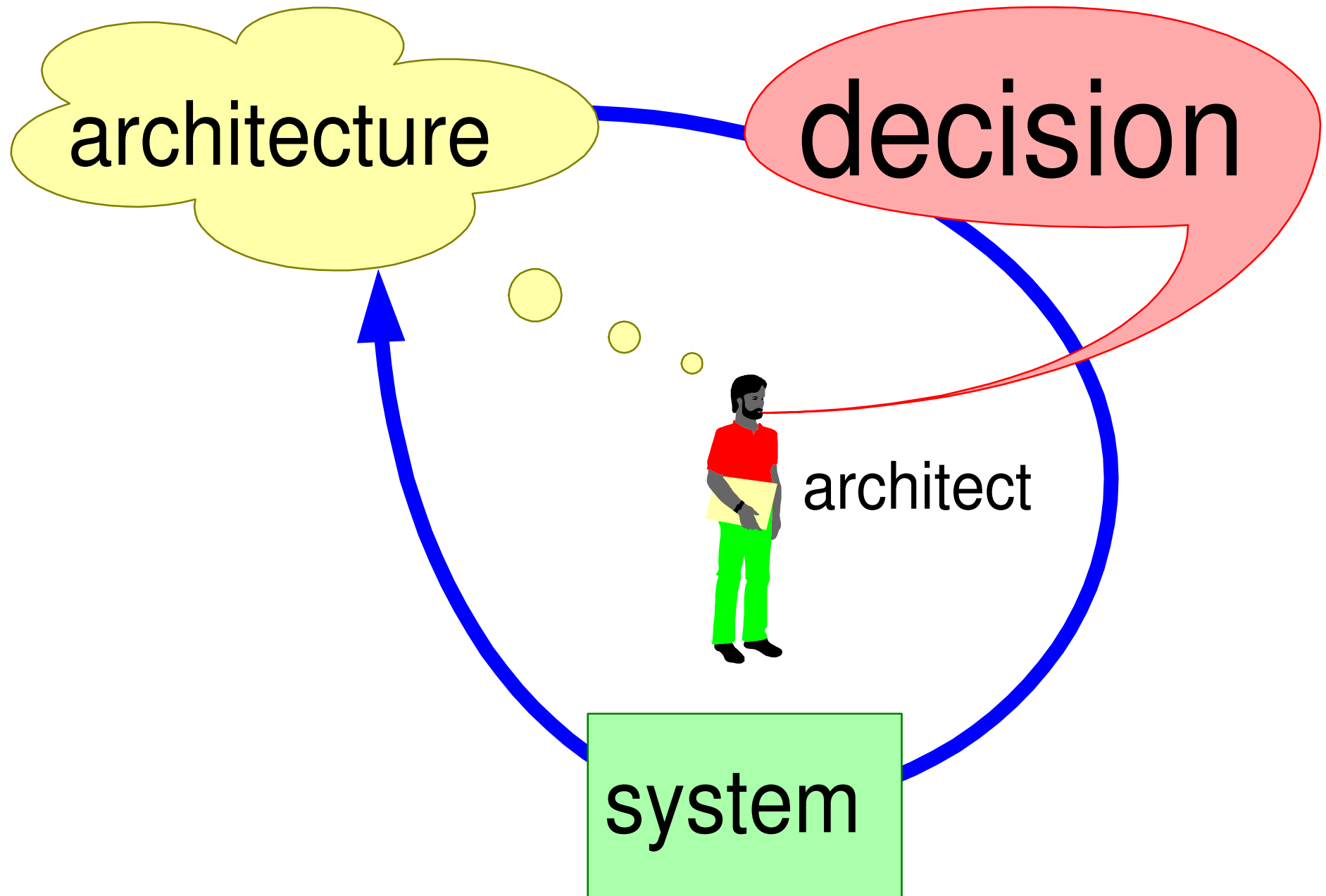


# The Art of Architecting





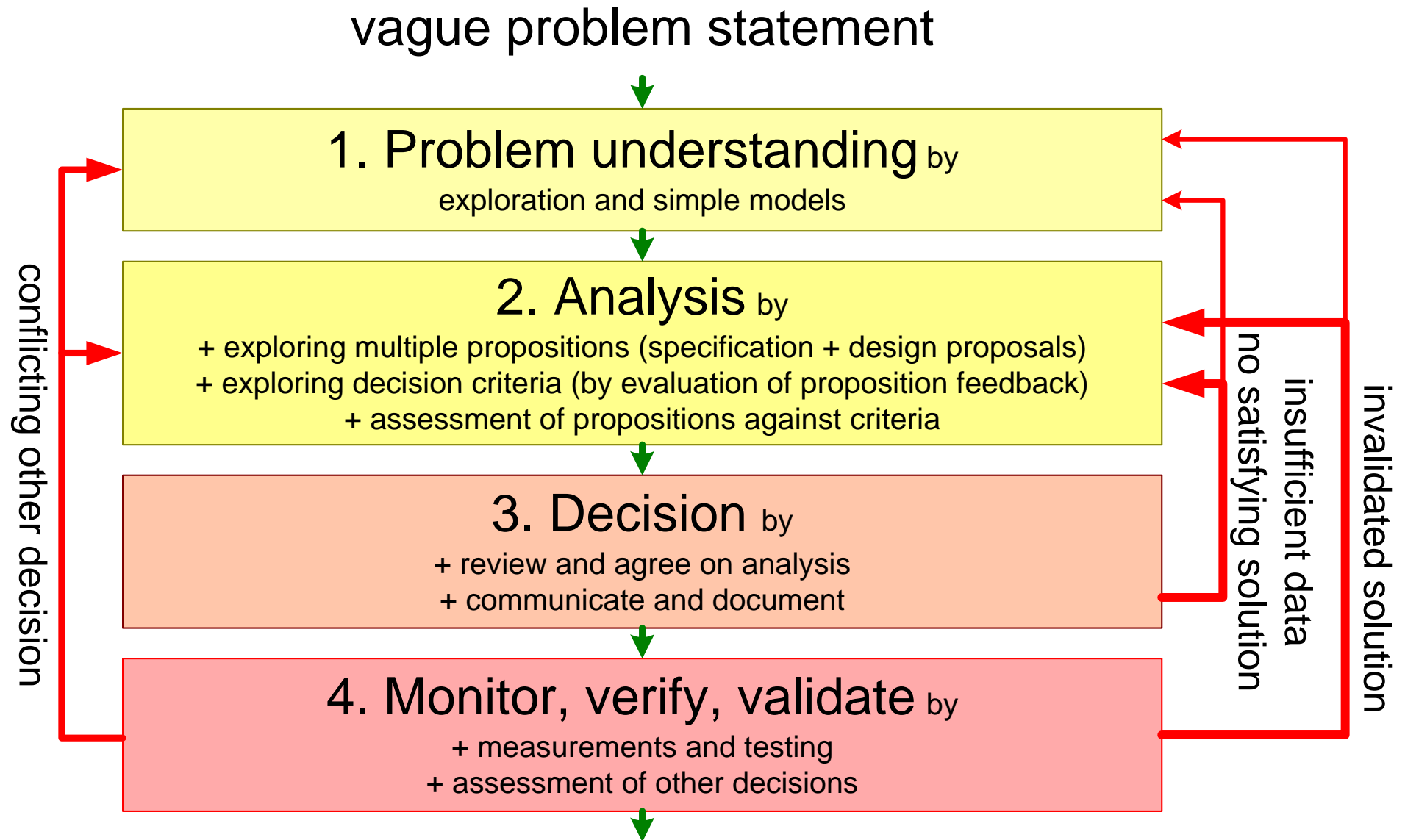
# Another Buzzword or Solution?



How many (architectural) decisions does an architect make?



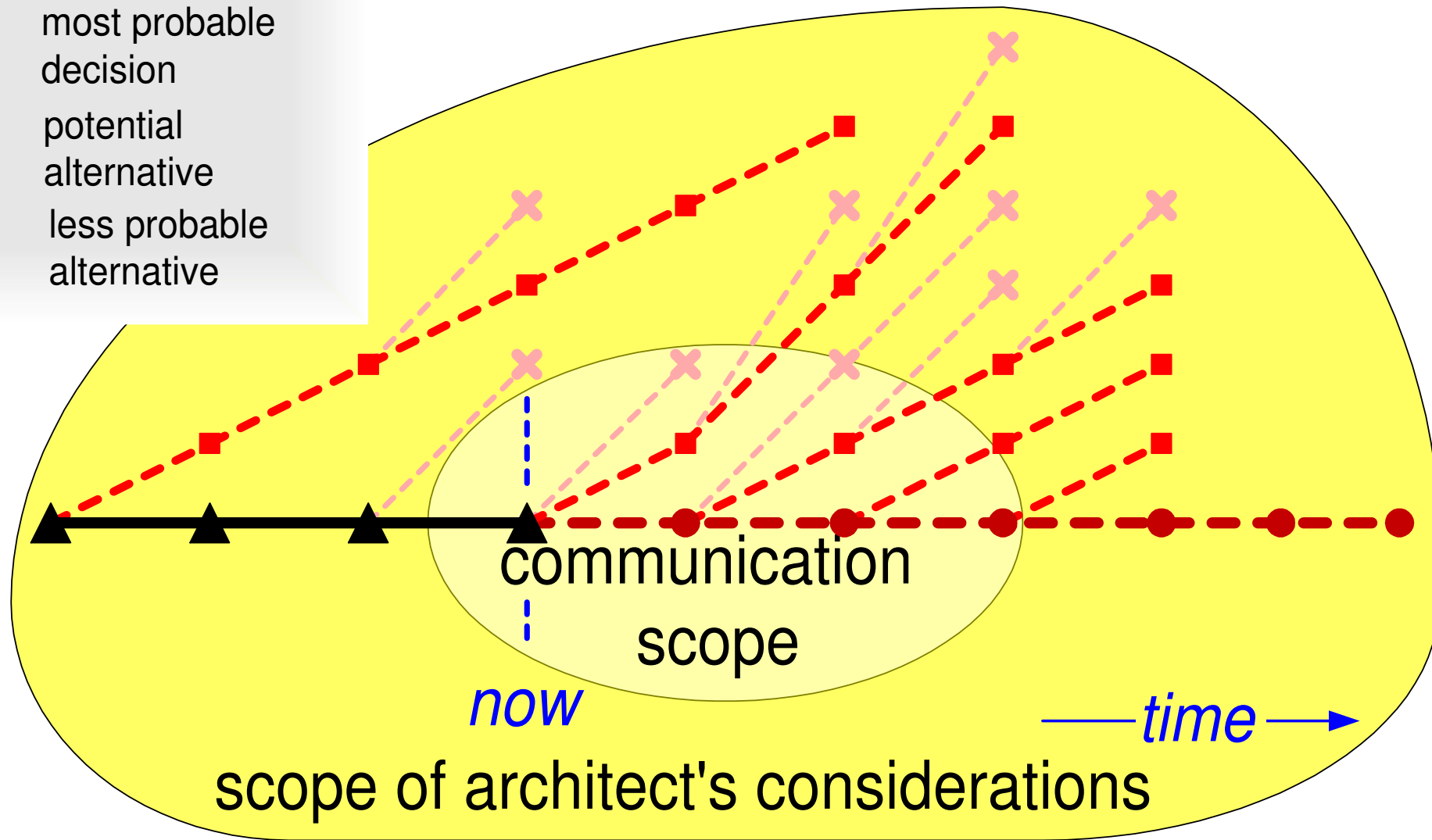
# Decision Making Process *Annotated*



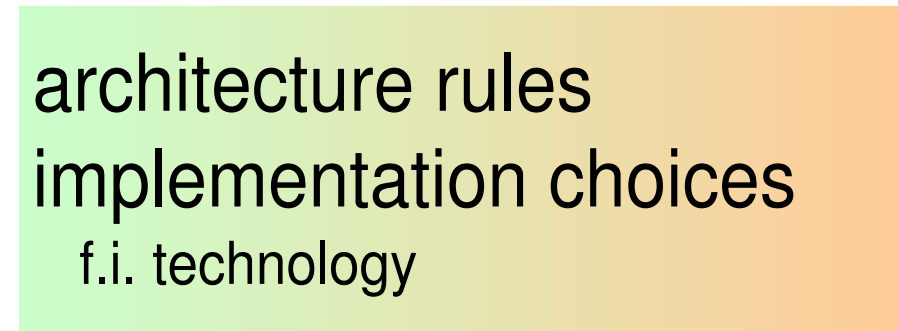
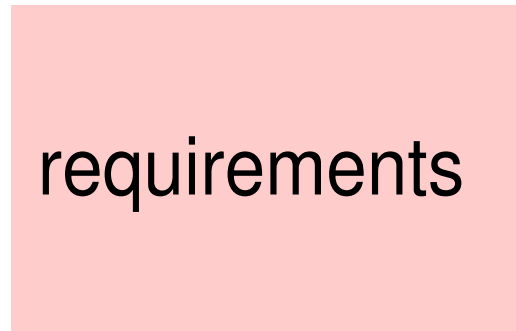
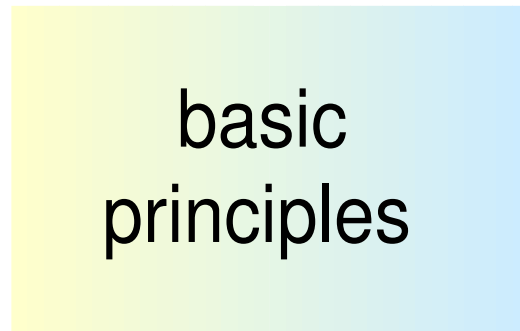
# Graph of Decisions and Alternatives

*legend*

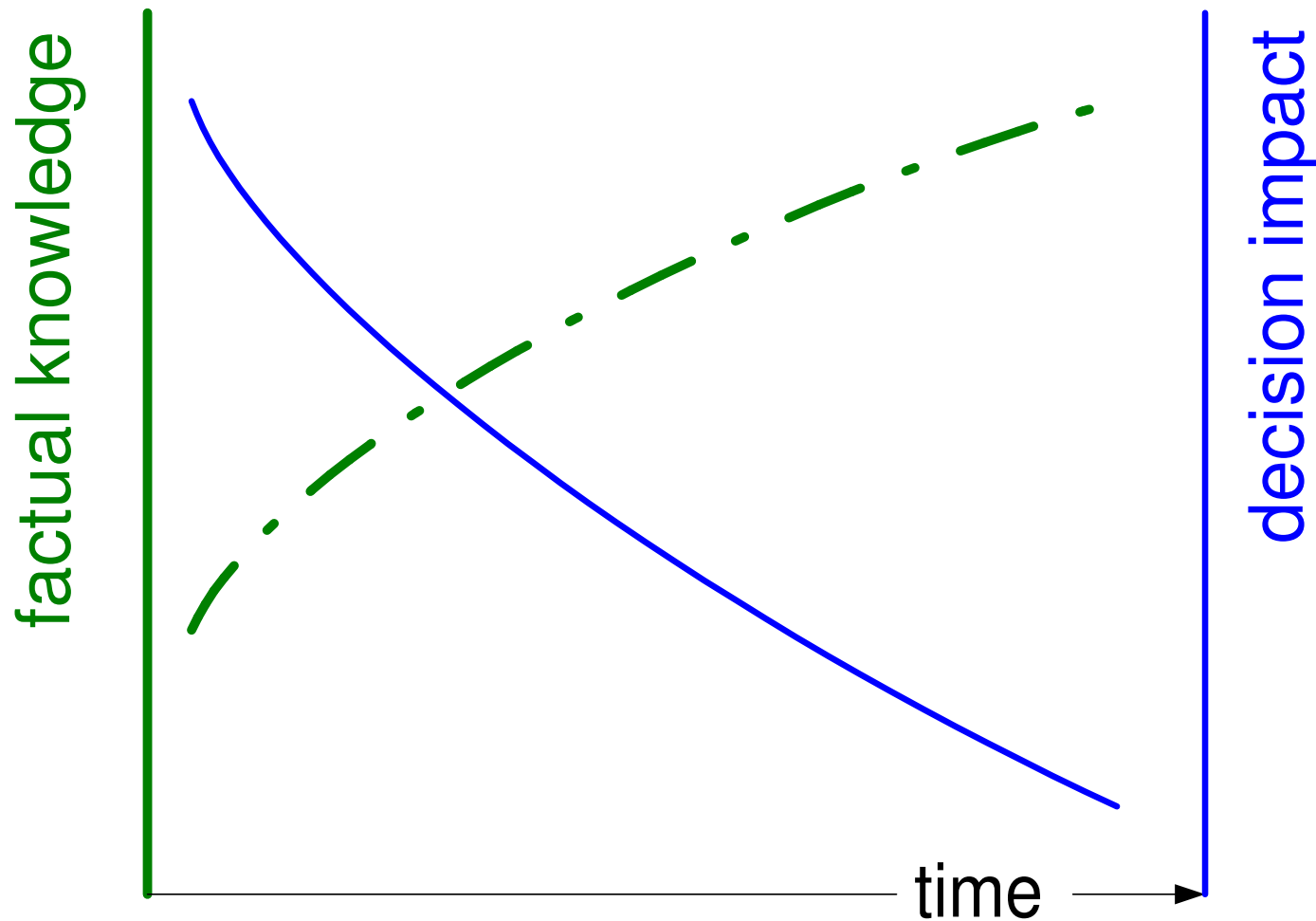
- ▲ past decision
- most probable decision
- potential alternative
- ✕ less probable alternative



# Different Types of Decisions

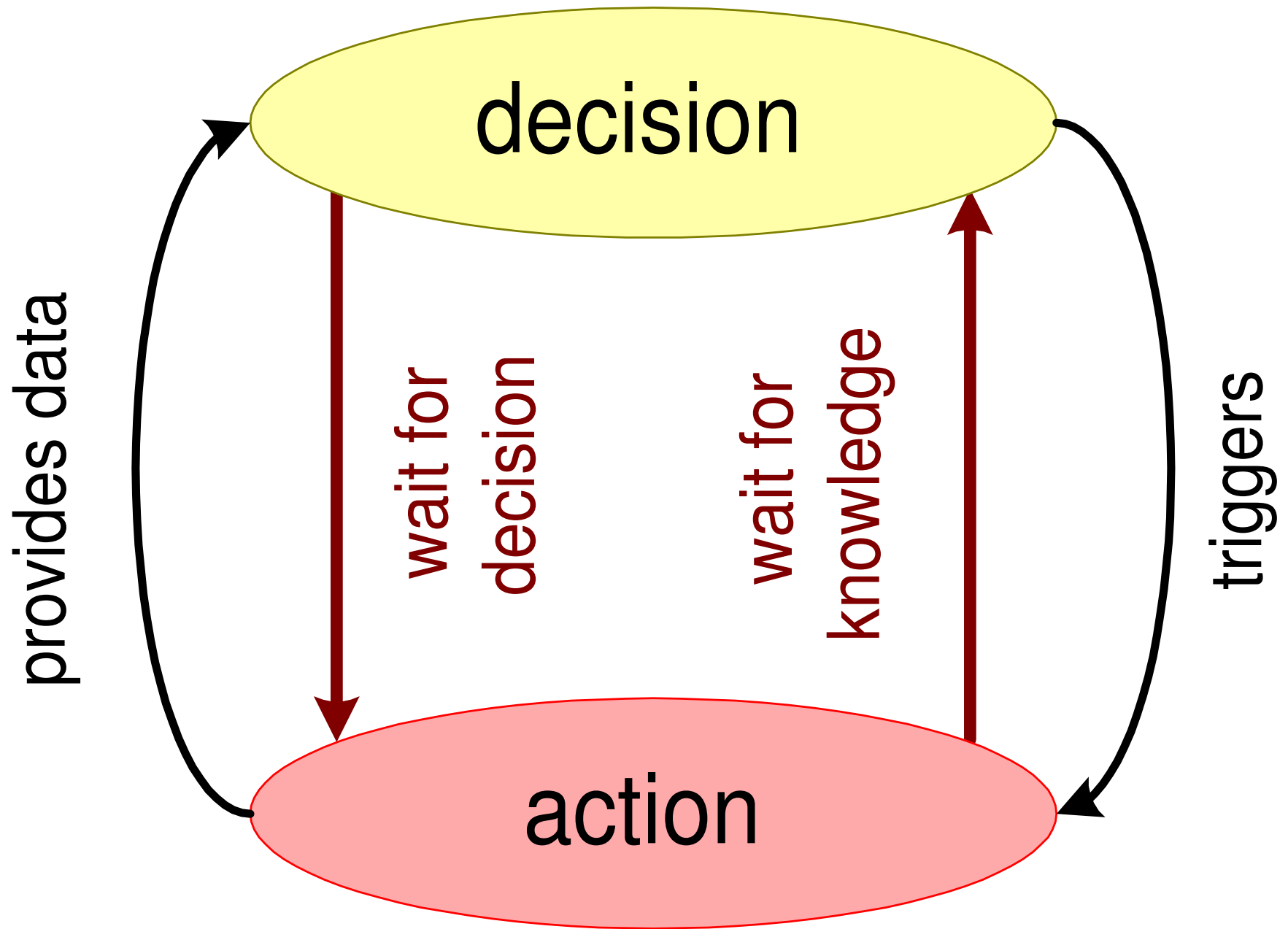


# Many Decisions are taken in the Dark



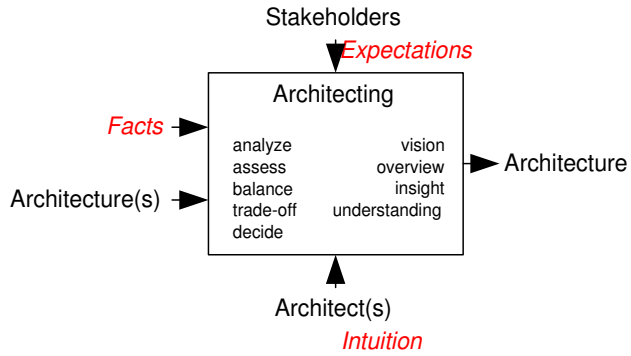
*Highest impact decisions are taken while the least factual knowledge is available*

# Chicken or Egg?

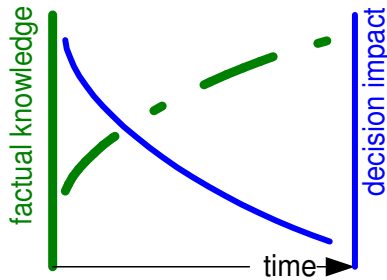




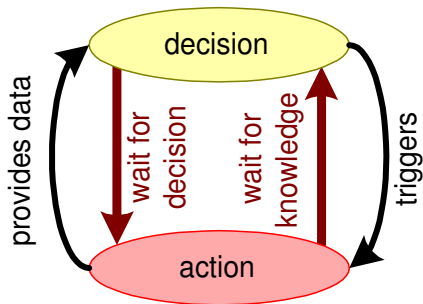
# Why Project Leaders Sometimes don't like Architects



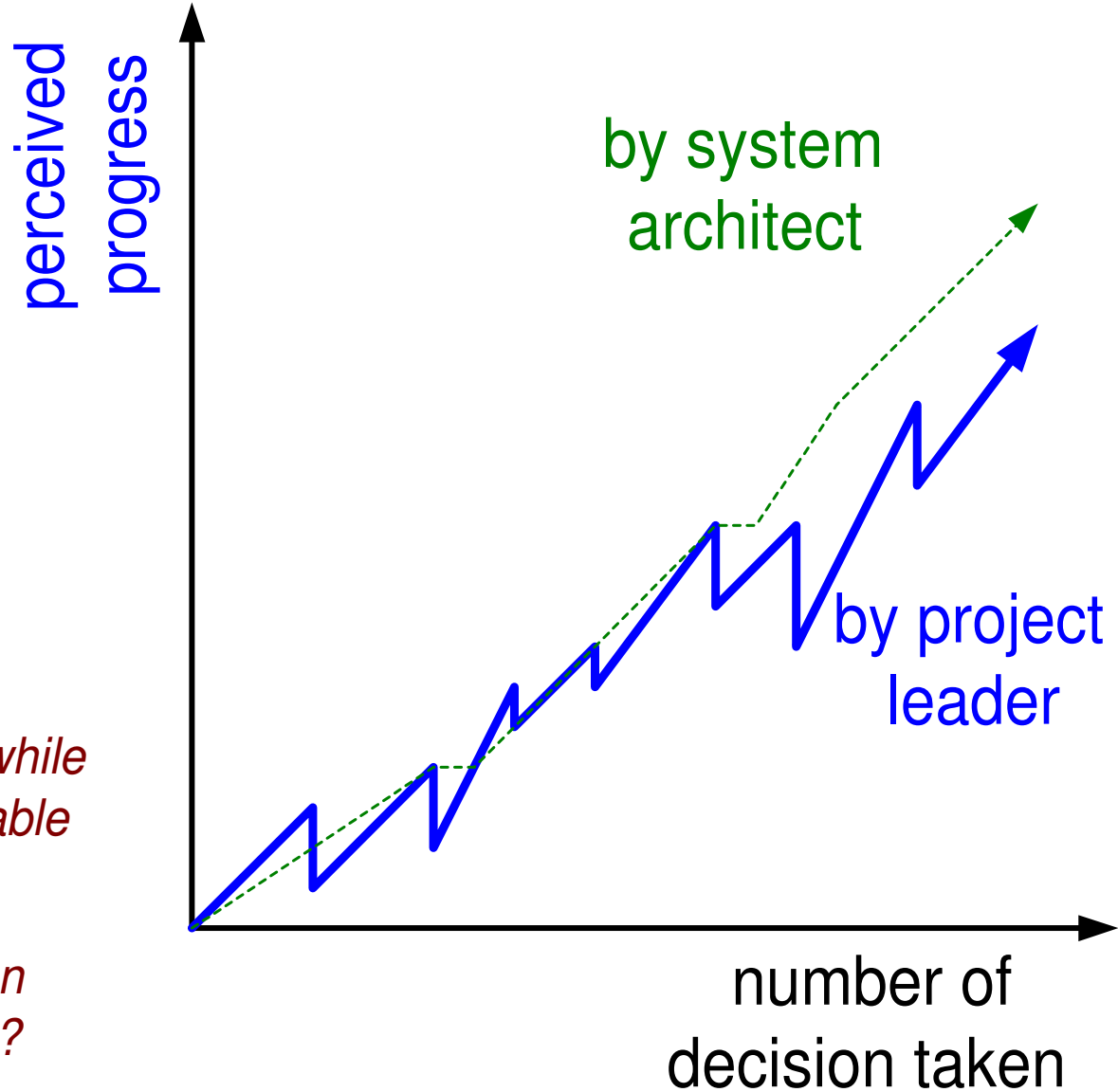
*Facts, Expectations and Intuition might be false*



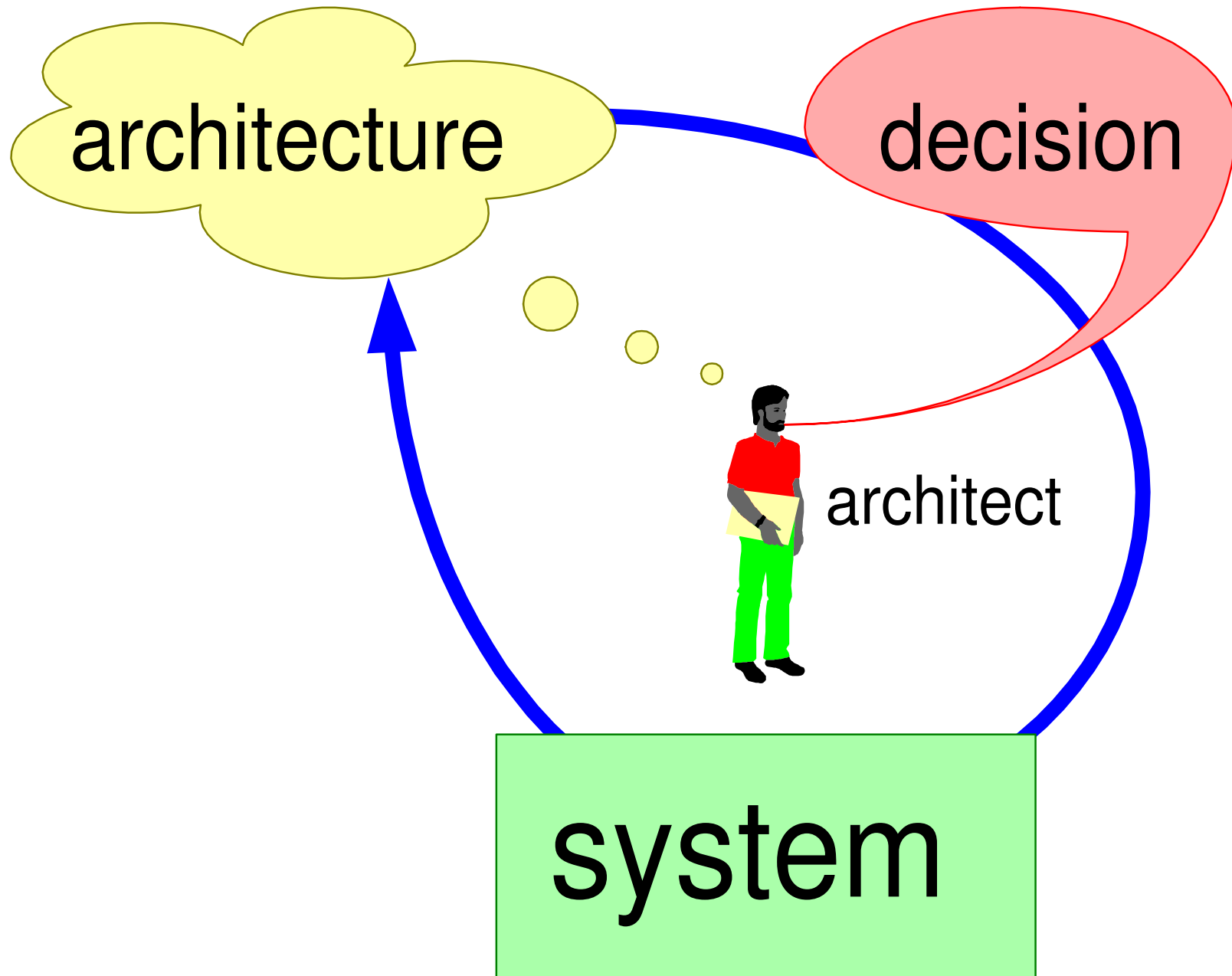
*Highest impact decisions are taken while the least factual knowledge is available*



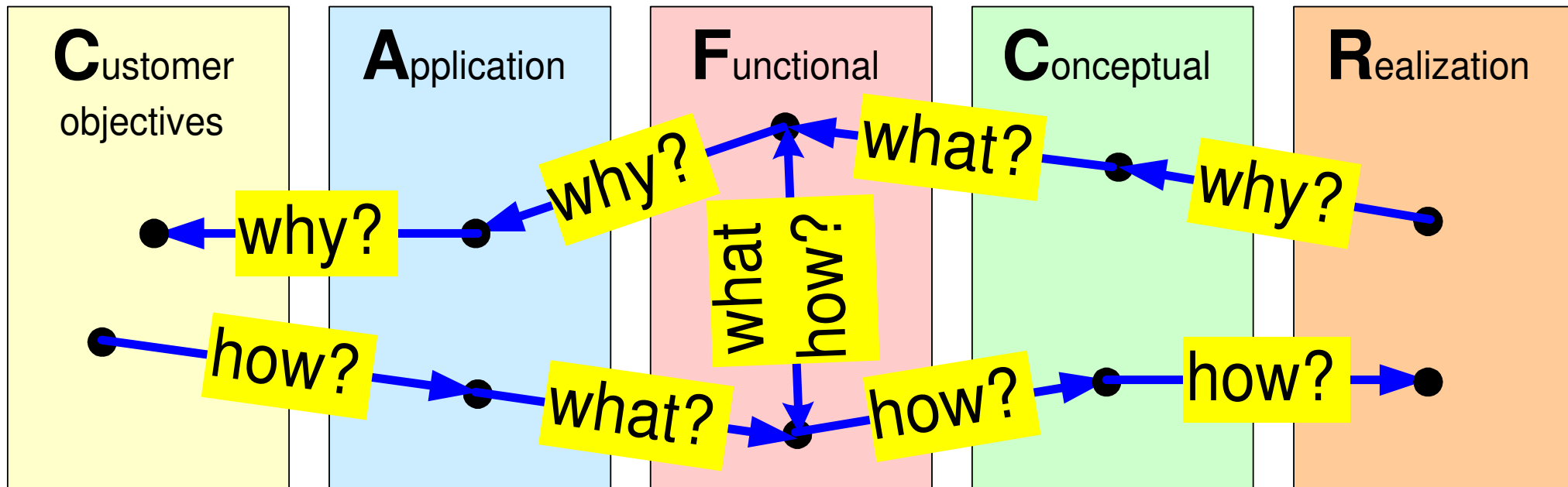
*decision - action chicken or egg?*



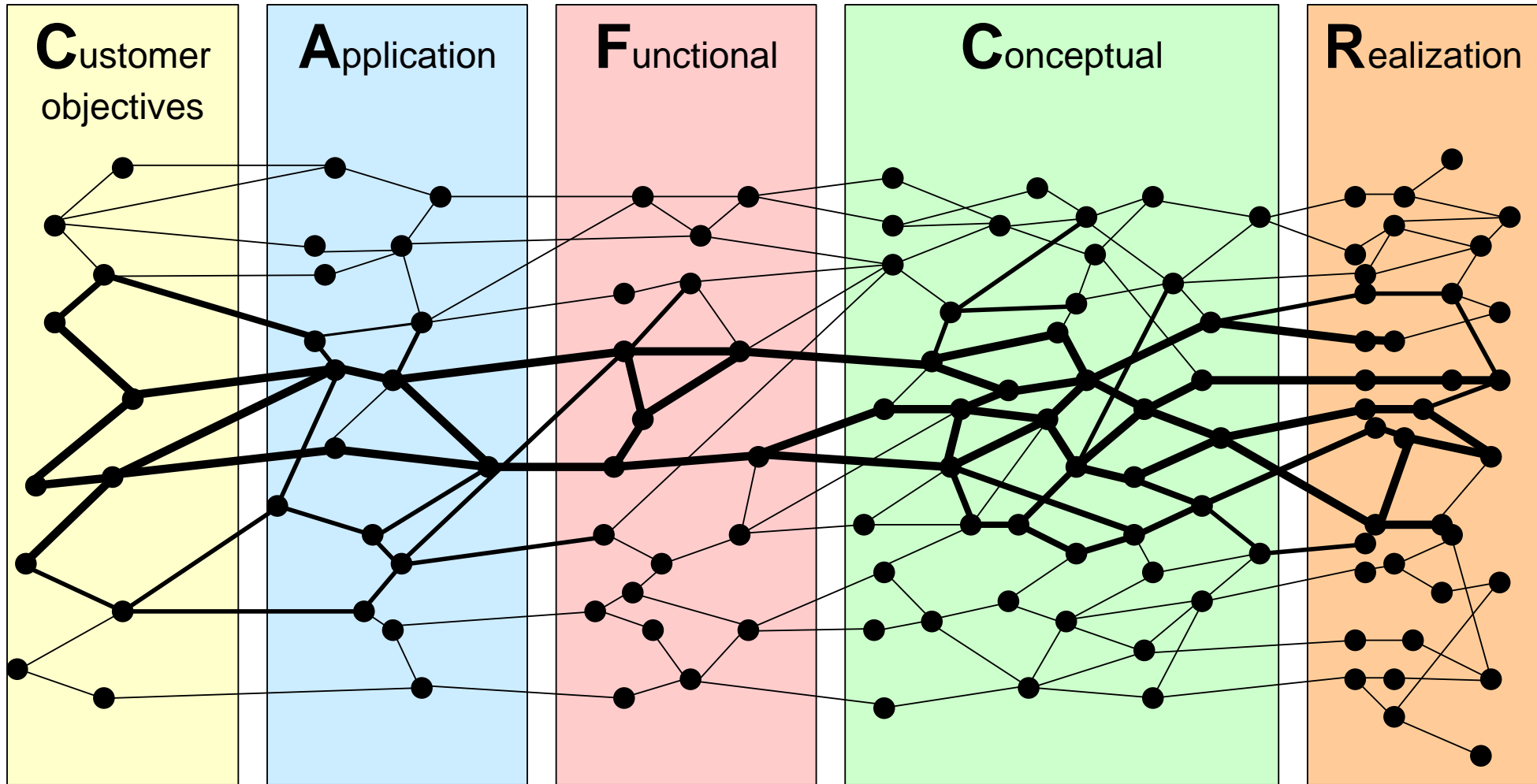
# Bottom-line is a Working System



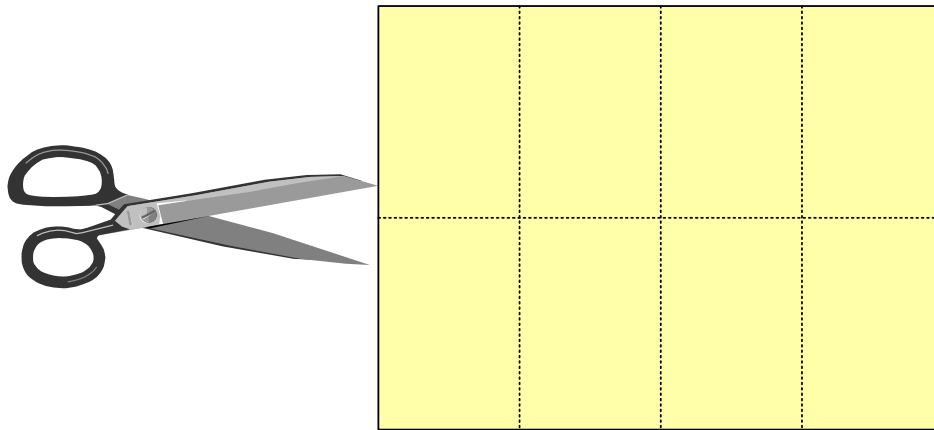
# Decisions Are Related



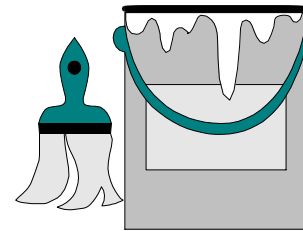
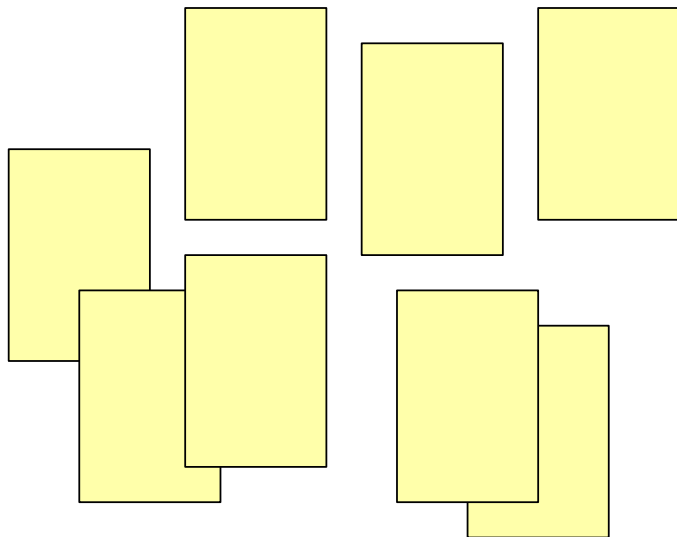
# Worse, Decisions Are **Heavily** Related



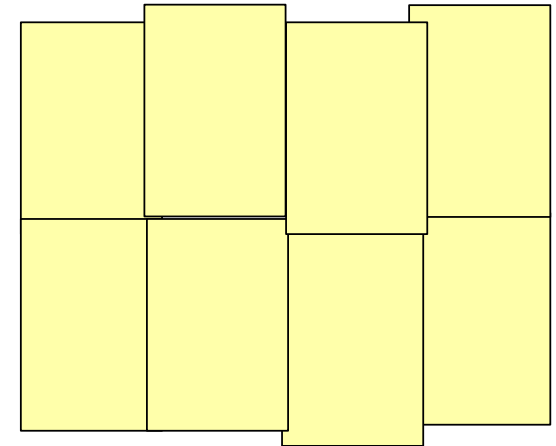
# Architecting is much more than Decomposition



Decomposition  
is "easy" ↓



→  
Integration is  
difficult

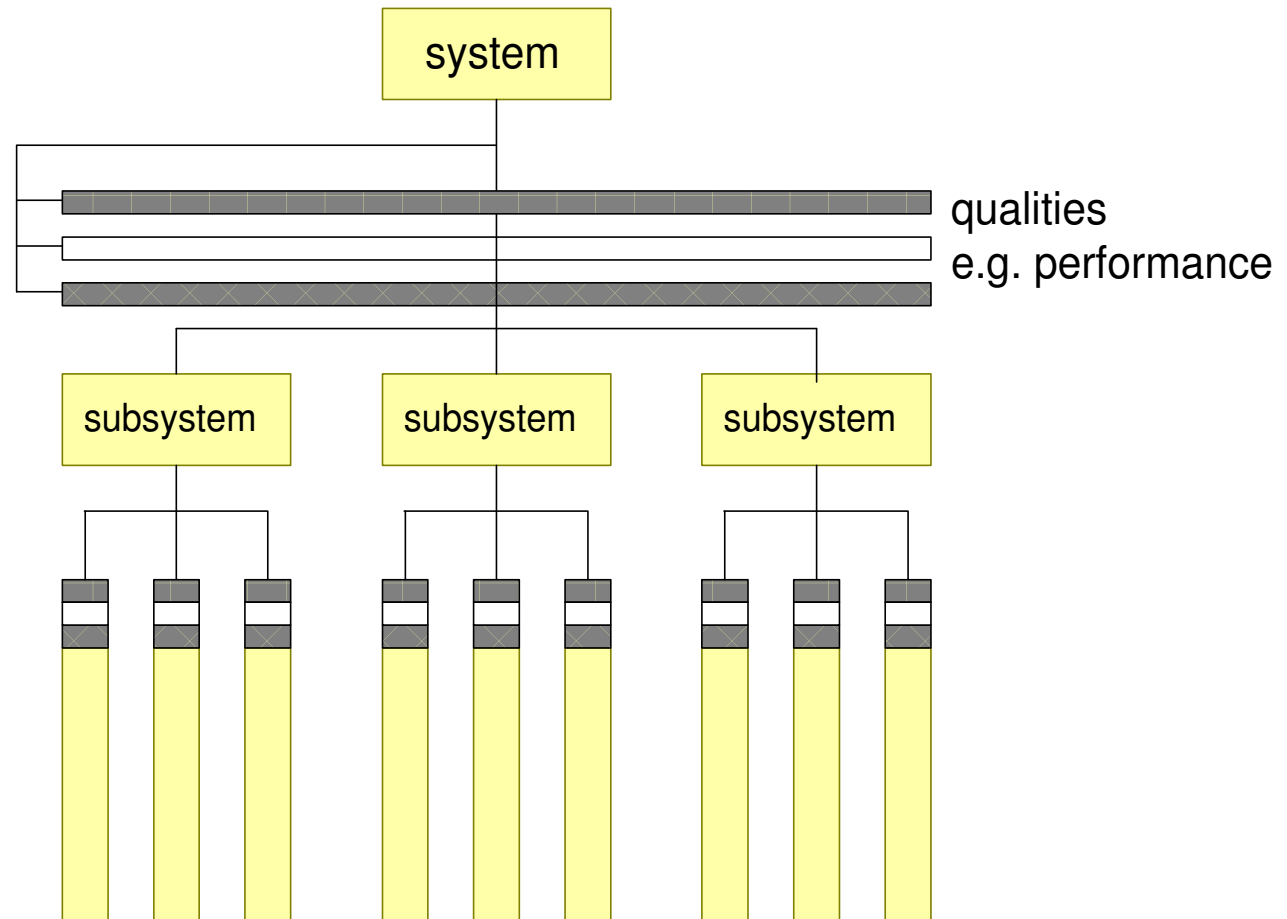


## δ's or structured

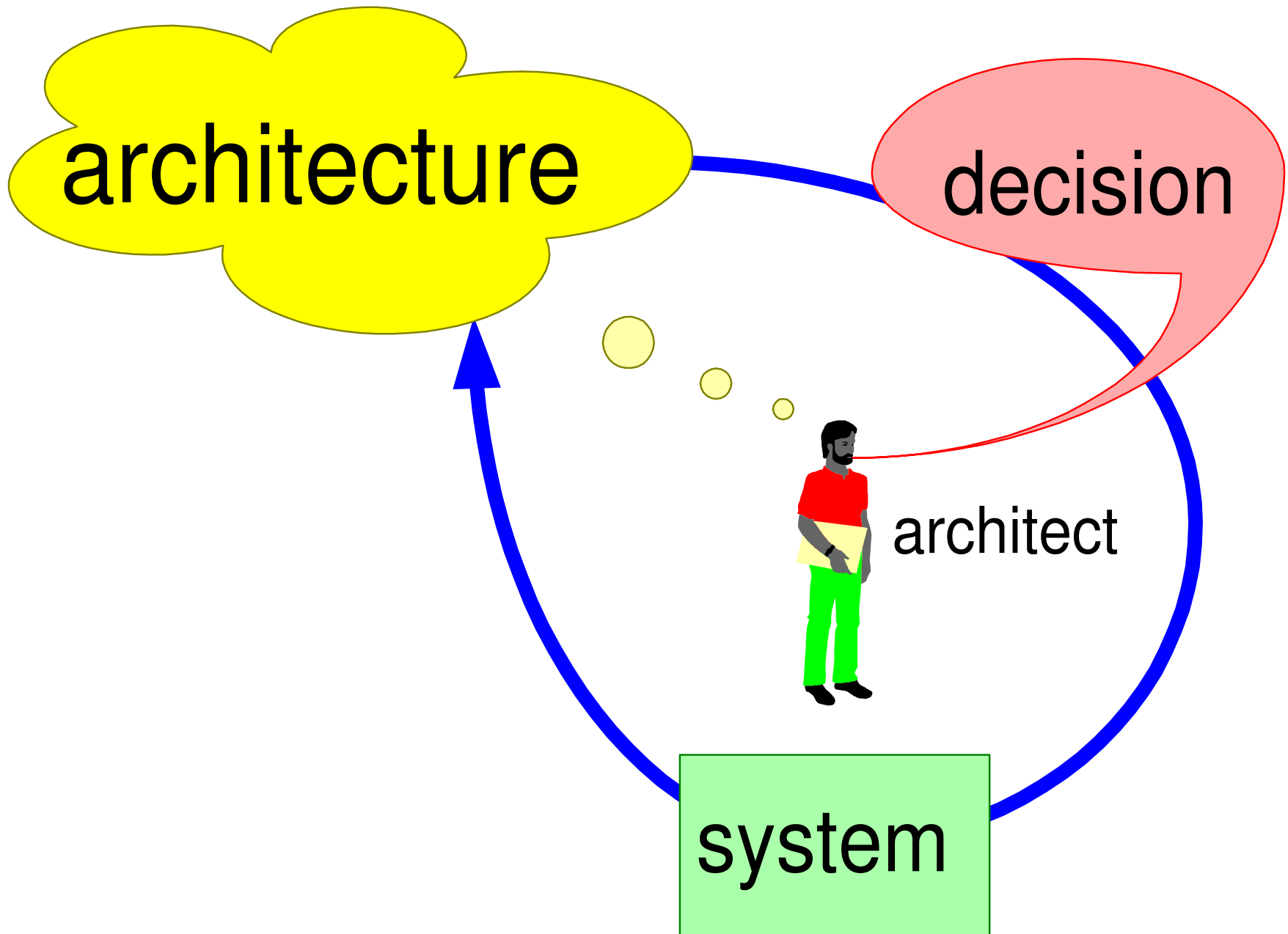
minutes 1  
decision 1  
decision 2  
decision 3

minutes 2  
decision 4  
decision 5  
decision 6

minutes k  
decision n  
decision n+1  
decision n+2

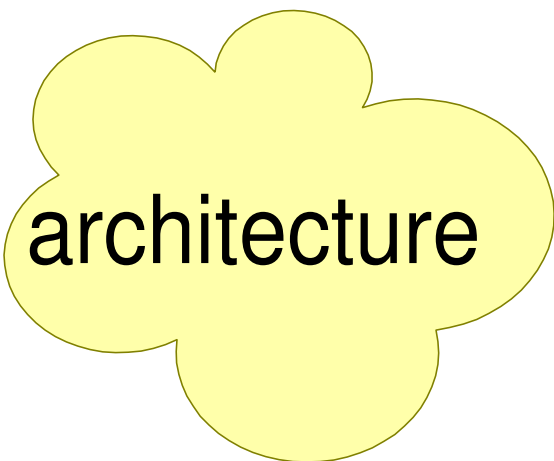


# Revisiting Architecture



# Fundamental Question

Is architecture



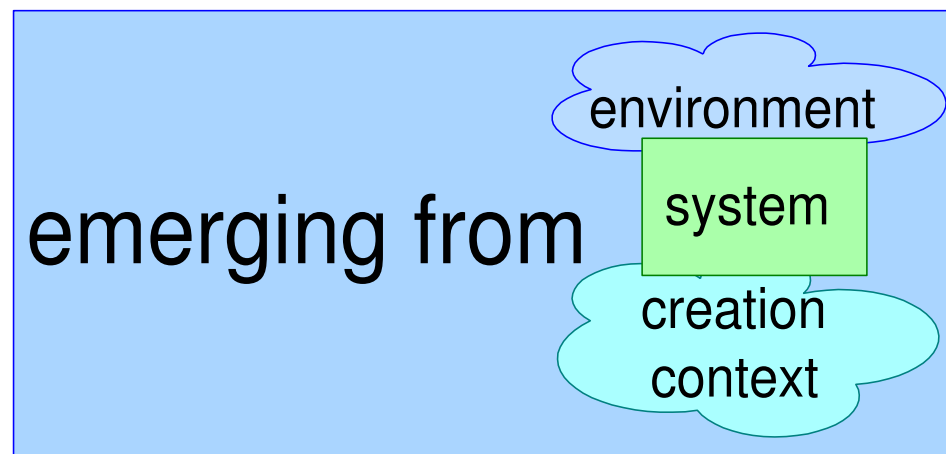
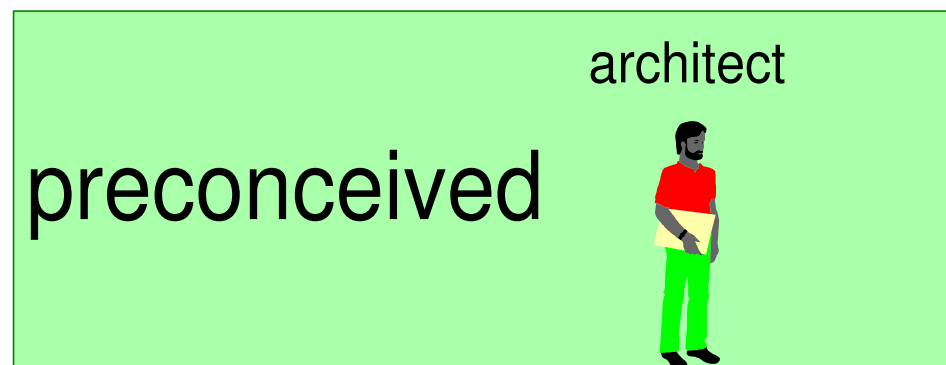
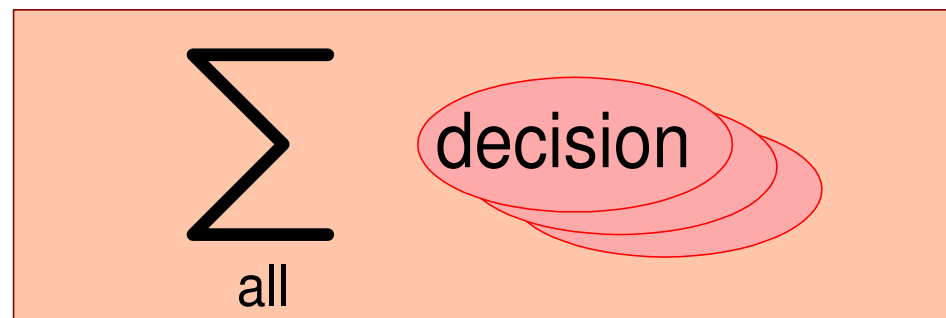
=

or

=

or

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?



# The End

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Back-up Slides and Answers only after this Slide

# Quantification from “The Role and Task of the System Architect

		Quantity per year (order-of- magnitude)	architect time per item
consolidation in deliverables meetings informal contacts sampling scanning	→ driving views	10	100 h
	→ shared issues	$10^2$	1 h
	→ touched details	$10^4$	0.5 – 10 min
	→ seen details	$10^5 - 10^6$	0.1 – 1 sec
	→ product details	$10^7 - 10^{10}$	
	real-world facts	infinite	

# Quantification from “Architectural Thinking”

